INSTRUCTION MANUAL

EVER®
POWER SYSTEMS

INSTRUCTION MANUAL
POWERLINE 11

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INTRODUCTION

Thank you for purchasing the EVER POWERLINE battery back-up. It belongs to the latest series of state-of-the-art power supply devices designed to work with servers, computer networks, as well as data processing systems.

EVER POWERLINE series UPS was designed so as to meet all your expectations for protection against power loss.

The following manual contains information on operating the device and safety rules. Familiarising yourself in detail with the manual prior to using the EVER POWERLINE UPS will help you operate the device correctly.

GENERAL INFORMATION

PURPOSE OF THE POWER SUPPLY

POWERLINE series battery back-ups are ONLINE-class (VFI) devices designed for work with equipment powered by monophase ~230V mains.

	WARNING! POWERLINE battery back-ups were not designed to work with medical equipment, in particular life and/or health support devices.

General features of the battery back-up

POWERLINE battery back-ups consist of the following functional units:

- rectifier unit with PFC (power factor correction),
- accumulator charger,
- accumulator unit in a battery module
- inverter manufactured in high-frequency IGBT technology,
- automatic bypass system,
- manual (service) bypass system,
- microchip control system with measurement units.

The input inverter converts the AC energy into an internal DC bus. The power factor correction (PFC) system enables a radical reduction of interference transmitted to the power system. The DC bus is the basic power source for the inverrter creating a nominal AC true sine wave used to power the receivers. An independent charger is responsible for charging the accumulator. Its distinctive feature is a very low

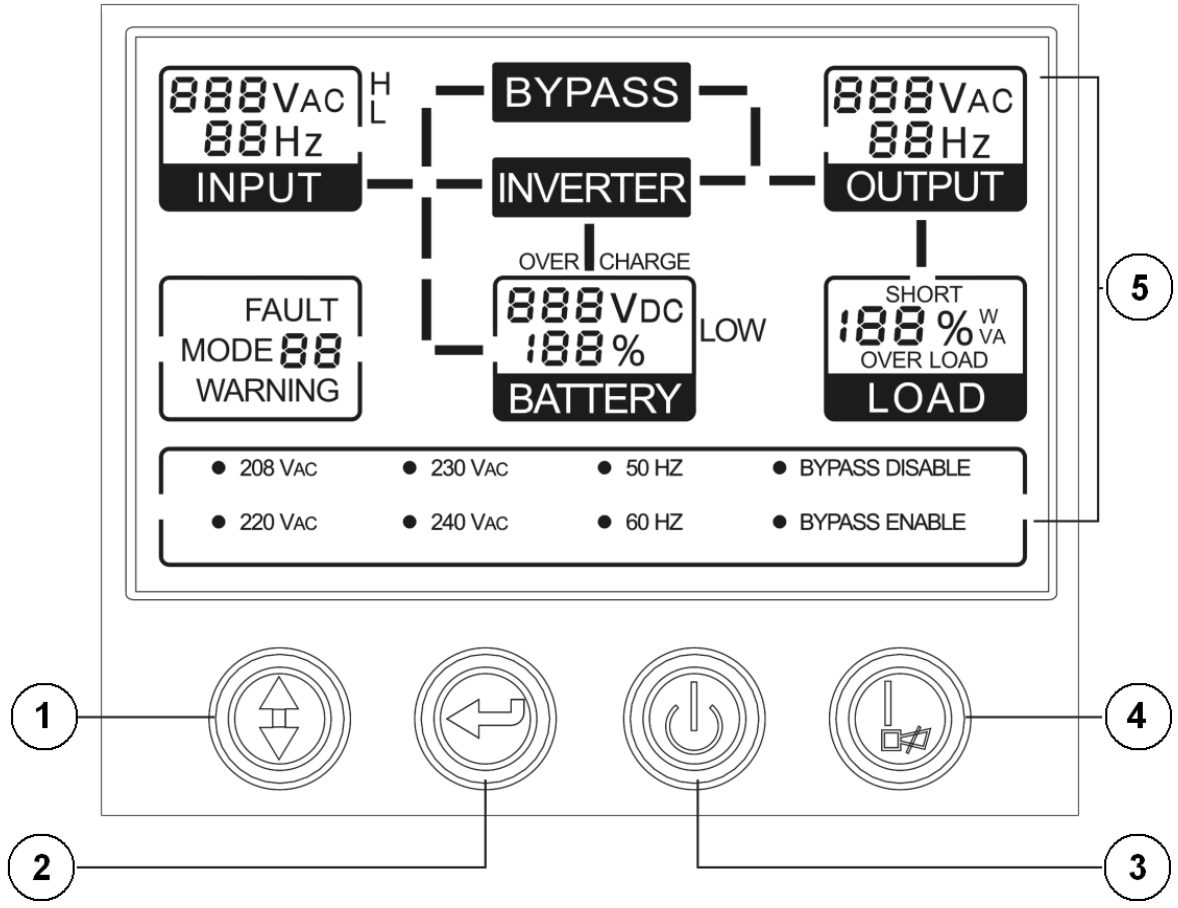
alternating charging current component, which considerably prolongs the accumulators' life. Microchip control system (DSP) enables precision and reliability of the whole power supply system.

The automatic bypass system increases the overall system security.
In the event of a failure of the inverter, the current from the mains will be provided directly to the load. Thus, the automatic bypass system becomes an additional, passive safeguard of the load.

Additional function of manual connection of the bypass enables a complete switch of the load power supply to mains and thus conducting servicing or maintenance work. Internal electronic circuits (excluding the secured manual bypass system) can be started by input breaker.

UPS STRUCTURE

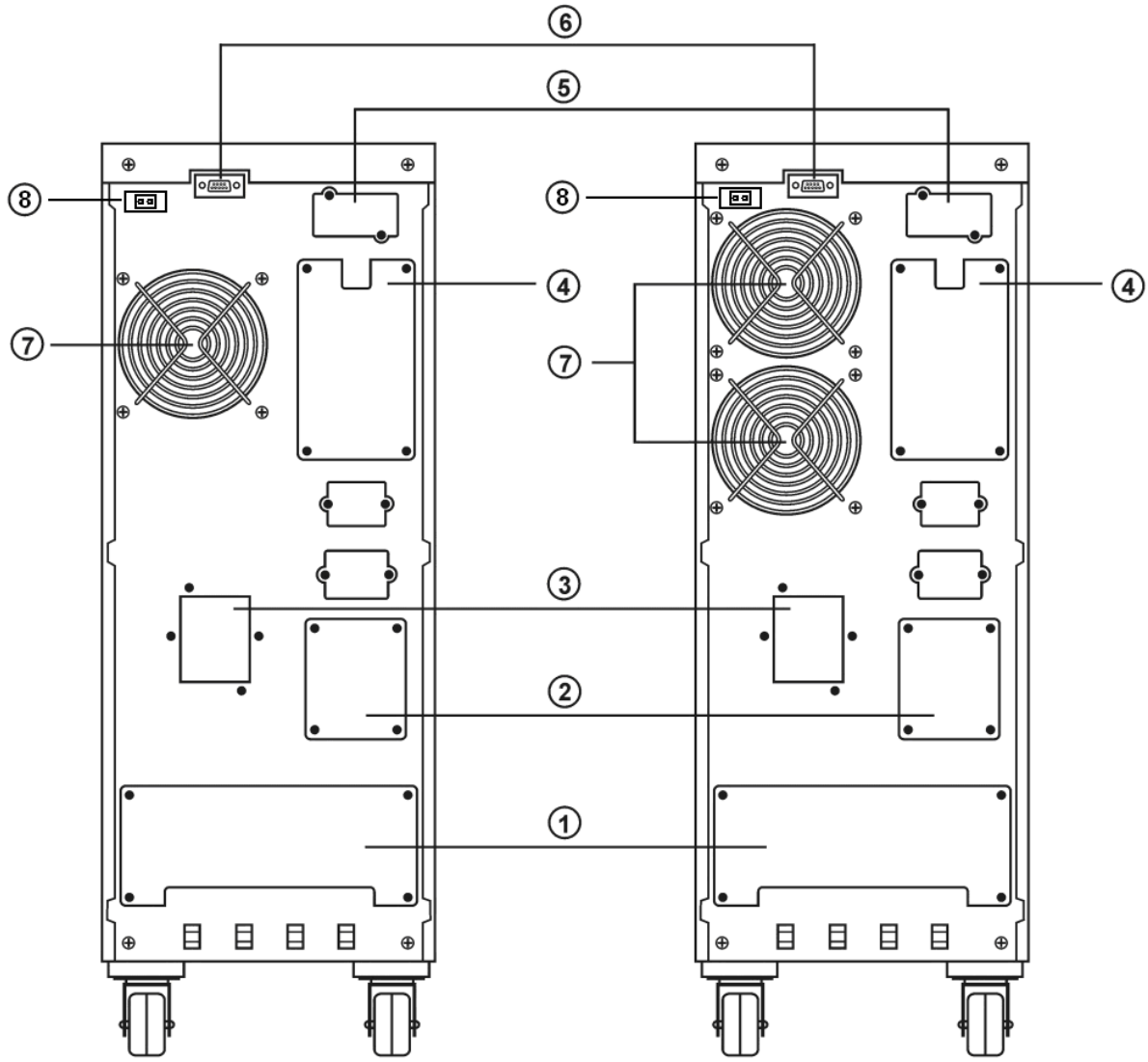
FRONT PANEL



No.	Symbol	Name	Description
1		**SELECT**	If the unit is in BYPASS mode or zero mode (STANDBY), pressing this button allows you to configure the unit's parameters: output voltage, frequency, BYBASS mode options. To approve the selection, press ENTER (2)
2		**ENTER**	If the unit is in BYPASS mode, parameters set by means of the SELECT key may be approved by pressing ENTER.
3		**OFF**	When the power supply is regular, pressing the OFF button causes the unit to switch to BYPASS mode and turns off the inverter. If the BYPASS mode option is available, the outlet is powered from the BYPASS line
4		**ON**	Turns the unit on Deactivates sound alarms.
5	-	**LCD**	LCD

Display	Description
Input	
888 VAC	Input voltage value
88 Hz	Input voltage frequency
H	Indicates excessively high input voltage; not displayed if the voltage is regular
L	Indicates excessively low input voltage; not displayed if the voltage is regular
Output	
888 VAC	Output voltage value
88 Hz	Output voltage frequency
Load	
188 % W VA	Unit load in W or VA
SHORT	Indicates short-circuit of the unit's output
OVER LOAD	Indicates unit overload
Storage cells	
888 VDC	Storage cells voltage value
188 %	Charge level of storage cells
OVER CHARGE	Indicates overload of the storage cells; the unit will switch to battery mode
LOW	Indicates that the storage cells are discharged; the unit will soon switch off
Mode/Error/Warning	
FAULT MODE 88 WARNING	Displays the unit's mode, error codes and warnings
Inverter	
INVERTER	Indicates the operational status of the inverter
Bypass	
BYPASS	Indicates the operational status of the BYPASS circuits
Output voltage, frequency, BYBASS mode option	
208 VAC 230 VAC 220 VAC 240 VAC	If the unit is in STANDBY or BYPASS mode, one of the four output voltage values may be selected
50 HZ 60 HZ	If the unit is in STANDBY or BYPASS mode, one of the two input voltage frequency values may be selected
BYPASS DISABLE BYPASS ENABLE	If the unit is in STANDBY or BYPASS mode, one of the two BYPASS mode options may be selected

REAR PANEL



Rear panel view of POWERLINE 6-11 and POWERLINE 10-11 back-ups

1 – Cover of the power supply and receiver grid connections

2 – Cover of the servicing BYPASS switch

3 – Input safeguard

4 – Parallel port (optional)

5 – Expansion card (optional)

6 – RS232 communications port

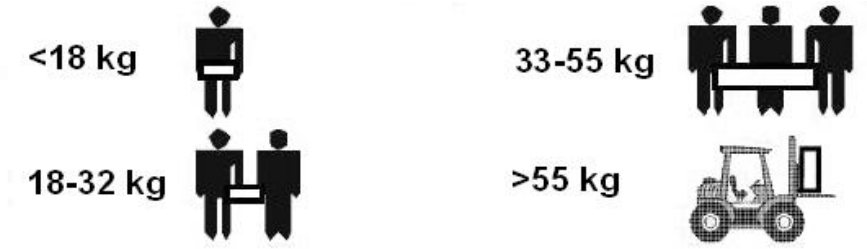
7 – Fans

8 – EPO connector

SAFETY AND HEALTH INSTRUCTIONS

TRANSPORT

- Due to the significant weight of the devices, special care must be taken during transport;
- do not handle heavy equipment by yourself;



- storage and operation of the device should take place in conditions conforming to its specification.

	WARNING! Transport, installation and maintenance of POWERLINE back-ups may be conducted only by qualified personnel.

ELECTRIC SAFETY

- Never work alone in conditions that may be hazardous to health and/or life;
- even a momentary shorting of a strong current may lead to severe burns;
- before connecting the device to the mains inspect the condition of power leads, plugs and sockets, as well as the condition of the device itself;
- To minimise the risk of electric shock, in cases when there is no way of verifying the earthing, the device should be disconnected from the mains before installation or connection of other equipment to the back-up – reconnect the power cord only after all connections are made;
- in order to avoid the risk of electric shock when connecting and disconnecting signal cables and touching two surfaces with differing electric potential, if possible use only one hand;
- The device must be connected to an installation with a protective circuit; Failure to comply with the above can result in electric shock;
- The installation must enable a complete disconnection of the power supply from the UPS, e.g. by switching an “S” breaker;

- The device receiving the current must be connected with an appropriate circuit protection (manual cut-out or circuit breaker);
- The device is equipped with an earthing cable which siphons the earth leakage current to the receivers (e.g. computer hardware). This should be taken into consideration with residual current safeguards;

	WARNING! The receiver line of the emergency power supply should be equipped with a remote emergency power off (EPO), located near the main power switch and appropriately marked.

	WARNING! Users are forbidden to carry out any maintenance activities, as they may lead to injury or death. Any repairs and replacement of batteries should be conducted only by a qualified representative of the technical support.

	WARNING! The battery back-up is disconnected from the mains only when the power cord is removed from its socket.

	WARNING! Since the device is equipped with internal power source (batteries) the output may provide current even though the device itself is not connected to the mains.

	WARNING! POWERLINE battery back-ups were not designed to work with medical life support devices.

INSTALLATION

	WARNING! Before installing the battery back-up you must obligatorily familiarise yourself with the safety and health measures provided in the previous chapter.

UNPACKING

Please inspect the battery back-up upon receipt. Although the product is packed very carefully it could have sustained damage from shock during transport. Should you find any damages, please inform the carrier or seller immediately.

	WARNING! The device is delivered with its accumulator connected.

The battery back-up is packed in a manner enabling safe transport (including by forklift truck). To unpack the device:

- carefully cut the protective bands,
- slide the cardboard cover off,
- remove the foam safeguards,
- according to H&S instructions, remove the battery back-up from the wooden transport pallet (this may require assistance),
- place the back-up in the installation location using the transport castors,
- block the castors.

Keep the packaging for future transportation of the device.
Verify the contents of the package, which should include:

- the battery back-up,
- 1 RS232 communication cable,
- Instruction manual on CD,
- warranty card.

INSTALLATION OF THE BATTERY BACK-UP

When choosing the installation spot you must take the device's weight into account. The back-up should only be used in rooms whose dustiness, temperature and moisture levels conform with the device's specification. In order to ensure correct operation of the back-up, appropriate cooling conditions for the device must be provided. For this reason the ventilation openings on the back-up's case must be uncovered and the distance between the back-up and other objects should be kept according to the guidelines (**technical parameters table**).

	WARNING! The device must not be installed close to flammable materials!

CONNECTING THE BATTERY BACK-UP

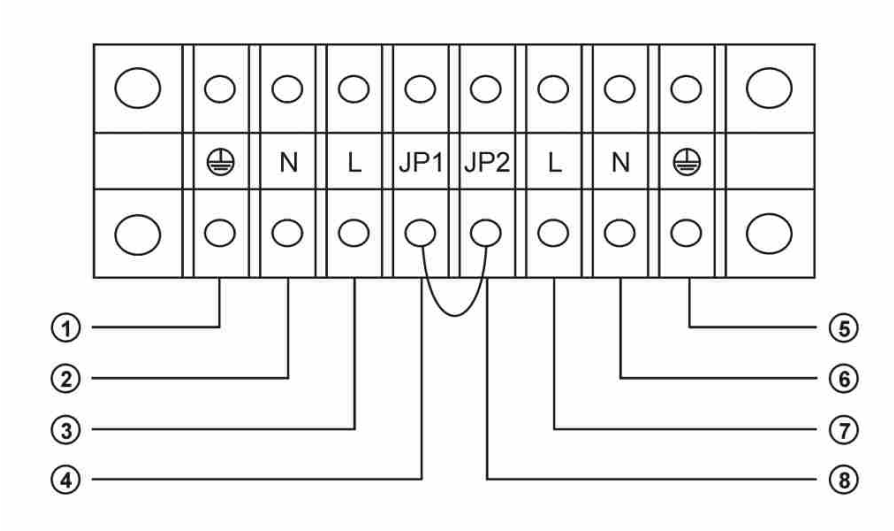
The connection should meet the requirements concerning the cable cross-sections and installed safeguards – cf. **technical parameters table**.

	WARNING! Connecting of the battery back-up to the mains should be performed only by a qualified and authorised personnel.

	WARNING! The battery back-up is disconnected from the mains only when the power cord is removed from its socket.

It is recommended that the safety circuits of the building function as one of the protection measures. Their parameters should be adjusted to the type and dimensions of the load connected to the installation (**technical parameters table**).

Input / Output Installation



1 – PE cord of the power supply line

2 – N cord of the power supply line

3 – L cord of the power supply line

4 – Jumper (parallel operation option)

5 – PE cord of the output line

6 – N cord of the output line

7 – L cord of the output line

8 – Jumper (parallel operation option)

FIRST START

When started for the first time the battery back-up may require to be left connected to the mains in order to allow the internal accumulators to charge. In order to do this, connect the input power supply line. UPS will charge the accumulators regardless of the operation mode (ONLINE – UPS on, inverter working, or OFFLINE – UPS off, inverter not working, output powered by the bypass system).

	WARNING! Back-up's batteries reach their full capacity after approximately a month of mains operating mode.

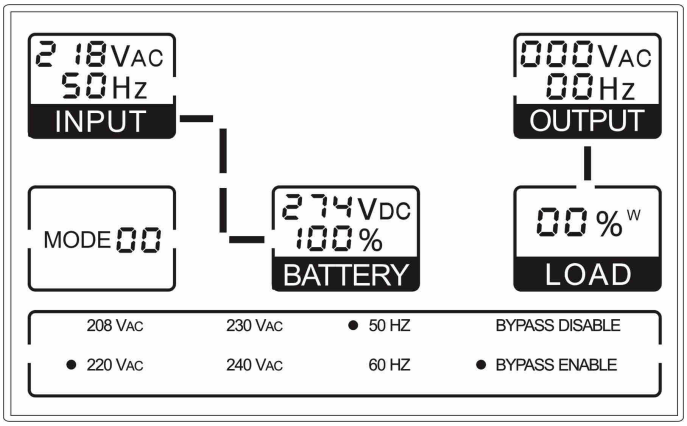
DESCRIPTION OF THE BACK-UP'S OPERATION

GENERAL INFORMATION

The POWERLINE battery back-up is a state-of-the-art electronic device constituting an autonomous source of true sine wave voltage of ~230V. This device belongs to the ONLINE-class uninterruptable power supply group, characterized by constant power processing. This enables the POWERLINE back-up to condition the power from the supply line. Regardless of volatage variations and input current deviations, the POWERLINE back-up at all times maintains at the output a clear true sine wave with the constant voltage of ~230 V. The back-up operates in the mains mode (i.e. not drawing power from the battery) in the wide range of input voltages ~176÷276 V, providing the ~230 V voltage to the receivers. Another advantage of constant processing in ONLINE-class back-ups is that there is no interruption when switching the load to another power supply (mains – battery). Switching between mains and battery operation modes are imperceptible for the receivers connected to the UPS output.

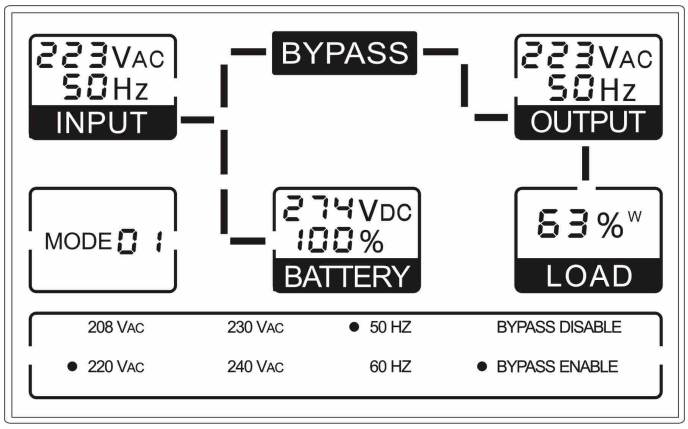
Code	Operational status		Indication
00	Zero mode (STANDBY)		None
01	BYPASS mode		A single sound signal every 2 minutes.
02	Mains operation mode		None
03	Battery operation mode	Charge level of storage cells at 0~20%	A single sound signal every 1 second.
		Charge level of storage cells at 21~100%	A single sound signal every 4 seconds.
04	Storage cells test mode		None

ZERO MODE (“00” MODE)



The display presents information on the battery charge status and input parameters (the value and frequency of input voltage). The UPS does not supply voltage to the output.

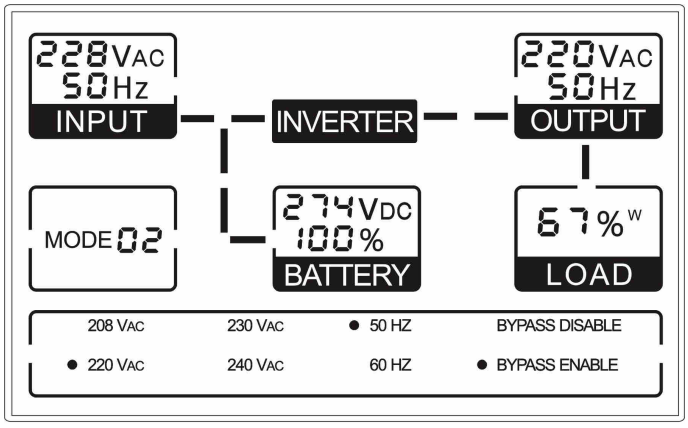
"BYPASS" MODE ("01" MODE)



The back-up switches to BYPASS mode in the event of inverter overload, exceeding the acceptable temperature, damage of the inverter and after turning the device off with the "0" button on the panel. In the BYPASS mode the voltage is provided to the output directly from the input line through the mechanical switch (transmitter). If the UPS switches to BYPASS mode because of overload or exceeding the acceptable temperature, then it will automatically conduct periodical examinations of the load and the inverter's temperature. When the above values return to normal levels, the inverter is reconnected.

In BYPASS mode, the unit does not provide any protection against voltage decay. Voltage from the input line is switched to the unit's output through an internal filter.

MAINS OPERATION MODE ("02" MODE)



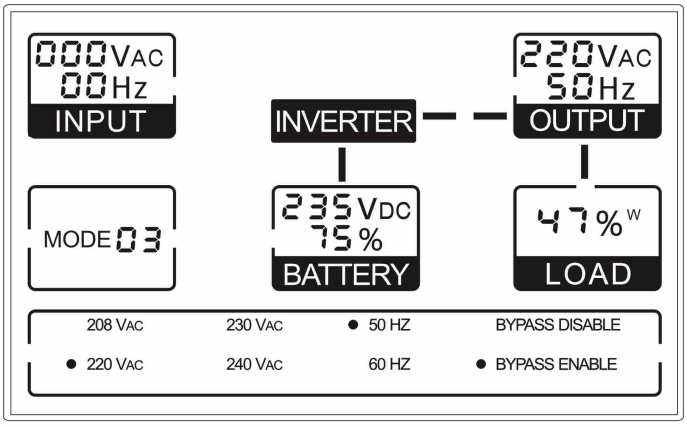
Connecting the battery back-up to the mains results in voltage occurring at the output. The power is then provided to the output by internal BYPASS system. When the power supply is connected, also the back-up's batteries are charged.

The back-up is started only after pressing the “ON” button on the front panel for approx. 1 second. After the completion of diagnostics UPS is ready for operation.
If the mains voltage is irregular (excessively low or high voltage, frequency outside the operating range), the unit will switch to battery mode. If the voltage is correct, UPS turns on the inverter and is ready for operation.

In the mains operation mode a voltage of ~230 V is present at the output of the UPS

⚠	**WARNING! Turning off the back-up with the button on the panel ⏻ will not disconnect the voltage from the output. The output voltage disappears only after disconnecting the input power supply line.**

BACK-UP (BATTERY) OPERATION MODE (“03” MODE)



In the back-up operation mode the true sine wave output voltage is generated by the accumulator until the mains voltage returns, the accumulator is discharged or an emergency situation takes place
In the event of no mains voltage, the unit is activated in the same way as in mains operation mode, however the difference is that following the completion of self test the panel displays the battery mode screen.

STORAGE CELLS TEST MODE (“04” MODE)

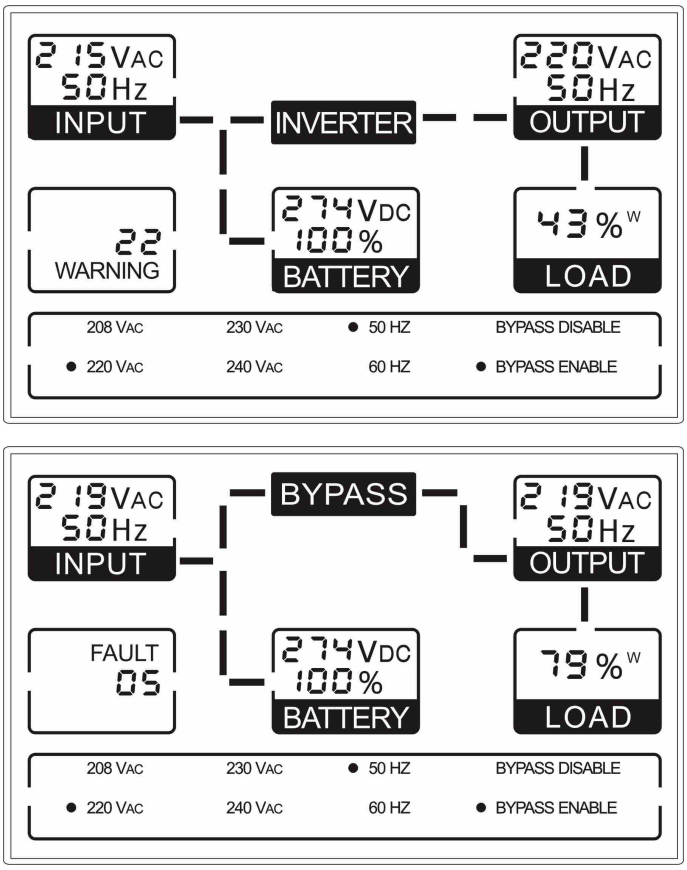
When in the storage cells test mode, the LCD panel displays the same information as in the battery operating mode. This mode has the “04” code. In this mode, the excessively low or excessively high input voltage indicators are not available.
The storage cells test mode is activate for approx. 10 seconds by pressing the “ON” button when the UPS is in mains operation mode (“02” MODE).

"SERVICE BYPASS" OPERATION MODE

This operation mode enables the servicing of the UPS without the need to disconnect power from the receivers plugged into the UPS output.

⚠	**WARNING! In the service BYPASS operation mode the receivers powered by UPS output are in no way protected from power loss in the mains. In this mode the UPS is completely disconnected from the output.**

EMERGENCY MODE



In this mode, the unit sends the appropriate error codes to the LCD panel and emits sound signals as per the following table.

Code	Unit operational status	Indication
01	Overload in mains mode; the UPS is in BYPASS mode	A double sound signal every 1 second.
02	Overload in mains mode; the inverter continues to operate	A double sound signal every 1 second.
03	Overload in battery mode; early warning	A double sound signal every 1 second.
05	Incorrect DC bus voltage	Continuous sound signal
06	Incorrect inverter operation	Continuous sound signal
07	Overload in battery mode; output cut-off	Continuous sound signal
08	Maximum temperature exceeded	Continuous sound signal
09	Output short circuit	Continuous sound signal
10	Incorrect communication	Continuous sound signal
12	Damaged inverter relay	Continuous sound signal
14	Damaged battery thyristor	Continuous sound signal
15	Parallel operation errors	Continuous sound signal
22	Incorrect fan operation	A single sound signal every 1 second.
23	Damaged batteries and loader	A single sound signal every 1 second.

SAFEGUARDS

Against overloads

An overload condition is signalled by the relevant code on the LCD panel and a sound signal (cf. Table 1).

If the overload reaches 105-130% of the maximum load, the UPS will switch into BYPASS mode after 10 minutes. If the overload exceeds 130%, the UPS will switch into BYPASS mode after 1 second and disconnect the output power supply after 1 minute.

Against shorting

The unit signals a short circuit by means of the relevant code on the LCD panel and a sound signal. When shorting occurs, the output power supply will be disconnected. If during a shorting signalling the UPS is shut down and the shorting is not removed, the UPS will switch into BYPASS mode, which will trigger the input circuit breakers.

EPO

EPO (Emergency Power Off) is a mechanism that cuts off energy supply to receivers at the UPS output in extreme situations (e.g. a fire).
The mechanism may be activated by short-circuiting the pins of the external EPO connector (trip).
If the unit was in mains operation mode, it switches to zero mode (STANDBY). If, in turn, the unit was in battery operation mode, it is switched off. Input voltage is reinstated only after the user manually removes the EPO short circuit. If the unit is in zero mode (STANDBY), signalling can be turned off by pressing the “OFF” button; the unit then switches to BYPASS mode. Only then is it possible to power on the unit
When the unit is switched off and the short circuit in the EPO circuit has been rectified, the unit may be powered on using the standard procedure.

The EPO connector pins have a safe voltage that is separated from the remaining systems of the device.

	NOTE! The EPO circuit must be a separate circuit and it is forbidden to connect it to other systems.

COMMUNICATION BETWEEN THE UPS AND A COMPUTER

RS232 COMMUNICATION

POWERLINE series battery back-ups come with enhanced control features. The user can work with a RS232 communications port or optionally an Ethernet port (for back-ups equipped with SNMP card). In order to ensure correct cooperation the battery back-up must be connected to the computer with the provided cable. After the cable is connected, start the back-up, start the computer and install the software in accordance with the instruction manual or the instructions provided by the PowerSoft installation software (which can be downloaded free of charge from www.ever.eu) or WinPower.

WinPower SOFTWARE INSTALLATION

Installation on computers with Windows

Prior to beginning the installation of WinPower:

- Uninstall the current version of WinPower, PowerSoft or any other control software (in situations where the user is changing the battery back-up protecting the computer),
- If the battery back-up will communicate with the PC via a USB cable, this cable should be disconnected from the computer. The software installer will prompt the user to connect the communication cable at the appropriate time.

In order to install PowerSoft on a computer with Windows just run the software installer and follow the instructions onscreen.

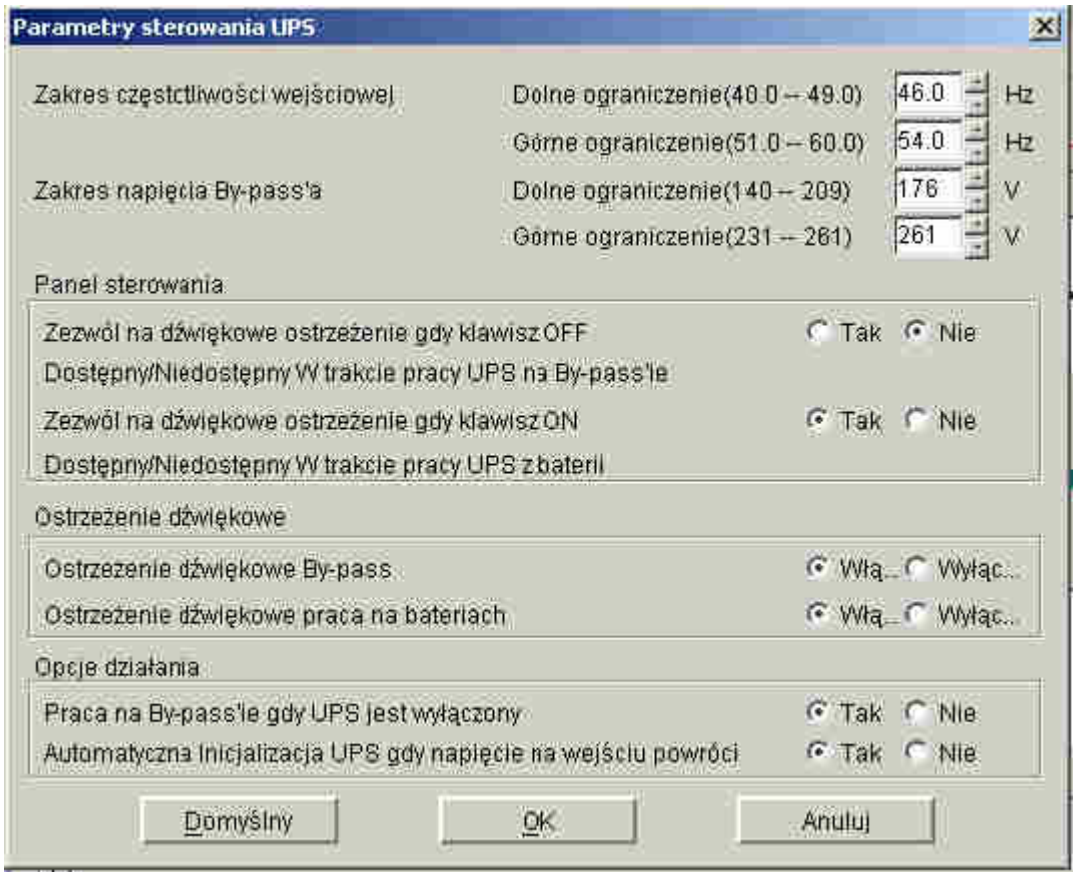
	WARNING! When the software prompts for a serial number, please key 511C1-01220-0100-478DF2A.

CONFIGURING THE BATTERY BACK-UP'S PARAMETERS

WinPower allows the user to change certain parameters of the battery back-up. To make it possible the battery back-up must be connected to the computer with the cable provided by the manufacturer and the user must be logged in with Administrator privileges. The default administrator password is set to “Administrator”. After logging in the user can change the password.

The screenshot below features the parameters that the user can modify in the software.

- Input frequency range for BYPASS,
- Voltage range for BYPASS,
- Panel keys’ functions and sound alarms settings,
- Device behavior after turning off.



INSTALLATION AND CONFIGURATION OF THE POWERSOFT PERSONAL SOFTWARE

Installation on computers with Windows

Before beginning the installation of PowerSoft:

- Uninstall the current version of PowerSoft or any other control software (in situations where the user is changing the battery back-up protecting the computer),

In order to install PowerSoft on a computer with Windows (the list of operating systems compatible with the application is available at www.ever.eu) just run the software installer and follow the instructions onscreen. During the installation you will be asked to select the model of the battery back-up connected to the computer on which the software is being installed. This setting may also be changed when the application is running.To uninstall PowerSoft select the "Uninstall PowerSoft" option in Start Menu. You can also uninstall PowerSoft from the "Add and remove programs" menu in the control panel.

Installation on computers with Linux/Unix

The binary version of the application for Linux/Unix systems is provided in the following formats:

CentOS, RedHat, Suse Linux, Fedora Core

For the following systems: CentOS, RedHat, Suse Linux, and Fedora Core the software is provided in the form of a RPM package. The software can be installed by using any package manage available for the system installed. If you are using the command line the software is installed by entering the following command:

rpm –ivh powersoftpersonal-x.x.x.i386.rpm

Users working with the PowerSoft must have root privileges to install the software and use it. After installation the application may be found in the */usr/local/powersoft* directory.

To uninstall the application enter the following command:

rpm –ev powersoftpersonal-x.x.x

Debian

For the Debian systems the software is provided in the form of a DEB package. The software is installed via the following command:

dpkg –-install powersoftpersonal-x.x.x.deb

To uninstall the application enter the following command:

dpkg –-remove powersoft

FreeBSD

For FreeBSD systems the software is provided in the form of the default package format designed for FreeBSD systems. The software is installed via the following command:

pkg_add powersoftpersonal-x.x.x.tbz

To uninstall the application enter the following command:

pkg_delete powersoft

Starting the software

After installation the system service is started automatically, while the control panel application can be found at */usr/local/powersoft.*
Please note that for the Polish diacritics to be correctly displayed the system locale should be Polish.

Software updates

Windows systems

The software installer for Windows systems has a built-in automatic updater. PowerSoft may regularly check for new software versions and notify the user when updates are available. By default the software check for updates after user log-in. This setting may be changed in the "Update configuration" item in the system's programme menu.

Linux/Unix systems

In the case of Linux/Unix systems PowerSoft may be updated by downloading the new package from www.ever.eu.
In the case of CentOS, RedHat, Suse Linux, and Fedora Core Powersoft may be updated by entering the following command:

rpm –Uv powersoftlite-x.x.x

In the case of Debian and FreeBSD systems we recommend uninstalling the old version and then installing the new version of the software. Commands which enable these operations are described in the instruction manual available at www.ever.eu.

ADDITIONAL REMARKS

	WARNING! Product for commercial and industrial applications in second environment. Applying additional preventive measures or limiters in the installation may be required in order to prevent the emission of disturbances.

	WARNING! No service elements located inside the battery back-up are to be modified by the end user.

- Damaging the warranty seal will void the warranty for the given device.
- Any repairs should be conducted only by a qualified representative of the technical support.
- The battery back-up may not perform as expected if the powered equipment draws high impulse power. In practice this means that even though mean power of the protected equipment does not exceed the range of powers accepted by the battery back-up, the equipment will cause the UPS to shut down. This happens because the protected equipment temporarily draws power that significantly exceeds the nominal power of the battery back-up, which causes a detection of an overload and the resulting shutdown. This situation may take place in the following cases:

- Television sets and monitors (as they are switched on the picture tube is degaussed which temporarily requires a lot of power),
- Laser printers (drum warming cycle),
- Other products with similar operating features.

Because of this, if a battery back-up is to be used with equipment other than computers, its compatibility with equipment used must be verified. In order to do this, the examined device should be connected to the battery back-up and its operation should be observed in all modes, i.e. start-up, shutdown, stand-by, etc.

BATTERY BACK-UP AND POWER GENERATORS

The POWERLINE series battery back-ups are ONLINE-class devices. By design, the battery back-up tolerates mains voltage variations in the range of ~176÷276V, as well as frequency variations of ±4 Hz with respect to the nominal frequency of 50 Hz. When working with a power generator, the frequency of the generator's voltage is variable and strictly dependent on the load value changes. If the frequency value exceeds tolerance limits, the back-up will deem it incorrect and switch into battery operation mode.

STORAGE, MAINTENANCE

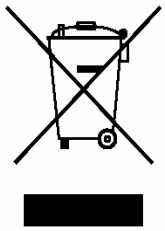
The battery back-up should be stored in a cool and dry place, in operating position, with accumulators completely charged:

- In temperature between 0℃ and +30℃ the accumulat or should be charged every 6 months;
- In temperature between +30℃ and +45℃ the accumul ator should be charged every 3 months.

DISPOSAL

Appropriate disposal of used up electric and electronic equipment helps to avoid consequences resulting from the presence of dangerous materials, as well as inappropriate storage and processing of such equipment, which may be hazardous to human life and the environment.

Act dated 29 July 2005 on used up electric and electronic equipment, article 22.1 items 1 and 2.



According to the regulations binding in the European Union, a crossed rubbish bin symbol means that when a product is no longer used it should be disposed of at a special waste pickup site. This concerns the device itself, as well as other accessories marked with this symbol. Do not dispose of those products together with unsorted household waste.

Method of safe removal of the batteries from the appliance:

The batteries should be removed from the appliance by an authorised service outlet or by a duly authorised electrician.

TECHNICAL PARAMETERS

INSTALLATION GUIDELINES

PARAMETER / UPS	POWERLINE 6 1/1	POWERLINE 10 1/1
Apparent / active power	6 kVA / 4.2 kW	10 kVA / 7kW
POWER SUPPLY PARAMETERS		
Power supply system layout	1P3W	
Nominal input voltage	230 V	
Nominal input current	25 A	40 A
Max. input current	45 A	74 A
Nominal input frequency	50 Hz	
Efficiency	> 90 %	
Min. cable cross-section	10 mm^2	16 mm^2
Line safeguards	2 x 50 A (chk C)	2 x 80 A (chk C)
OUTPUT PARAMETERS		
Output system layout	1P3W	
Nominal output voltage	230 V	
Nominal output current	19 A	31 A
Max. output current	45 A	74 A
Min. cable cross-section	10 mm^2	16 mm^2
Line safeguards	2 x 50 A (chk B)	2 x 80 A (chk B)
ENVIRONMENTAL PARAMETERS		
Amount of heat radiated in nominal operating conditions	1500 BTU	2400 BTU
Operating temperature	0 – 40 ℃	
Storage temperature	0 – 40 ℃	
Humidity	< 95 %	
Altitude (above sea level)	< 1000 m	
MECHANICAL PARAMETERS		
Dimensions (h x w x d)	717 x 260 x 570 mm	
Weight	90 kg	93 kg
Operating expanse gap	Front: > 200 mm Sides: > 100 mm Back: > 300 mm	

TECHNICAL DATA

PARAMETERS / MODEL	POWERLINE 6-11	POWERLINE 10-11
Output power [1]	6 kVA / 4.2 kW	10 kVA / 7kW
Working environment	Office or industrial rooms with low level of pollution	
Operating temperature [2]	0 ÷ +40℃	
Storage temperature	0 ÷ +40℃	
Relative humidity for operation	< 95 % (without condensation)	
Relative humidity for storage	< 95 % (without condensation)	
Altitude (above sea level) [3]	Up to 1000 m	
Maximum length of outgoing cables	< 10 m	
MAINS OPERATION MODE		
Input voltage	~176 ÷ 276 V ± 2 %	
Frequency of input voltage	46 ÷ 54 Hz ± 1 Hz	
Output voltage	~230 V ± 1 %	
Switching thresholds: Mains – UPS	~176 V / ~276 V ± 2 %	
Shape of output voltage	Sinus	
Time to switch to UPS	0	
BACK-UP (BATTERY) OPERATION MODE		
Output voltage (effective value)	~230 V ± 1 %	
Shape of output voltage	Sinus	
Switching thresholds: UPS – mains	~180 V / ~260 V ± 2 %	
Frequency of output voltage	50Hz ± 1 Hz	
Filtering of output voltage	LC	
Shorting safeguard	Electronic	
Overload protection	Electronic	
Time to switch back to mains operation	0 ms	
Internal batteries support time (100 % / 80 % / 50 % Pmax)*	9 / 12 / 28 min	6 / 8 / 20 min
Accumulator	20 x VRLA 12V / 7 Ah	20 x VRLA 12 V / 9 Ah
Maximum charging time of internal batteries	< 5 h**	
MECHANICAL PARAMETERS		
Dimensions (h x w x d)	717 x 260 x 570 mm	
UPS weight	90 kg	93 kg
Battery module weight	N/a	
EQUIPMENT		
Outlet sockets	Power rack	
Signalling	LCD panel, sound signals	
Cut-out	2 x 50 A (D) circuit breaker – protection at the mains side	
Communication interface	RS232, SNMP/HTTP network control card – optional	

Note: The manufacturer reserves the right to change the abovementioned parameters without notice.
* Support times can be extended with battery modules, according to the customer's needs
** Charging time to 90% battery capacity, following a prior discharge with a load of 80% Pmax

Notes:

1) For normal operation of the battery back-up the load connected to its output should not exceed 80% of value indicated in the table. Reserve power is essential to ensure continuous operation of connected devices in case of momentary rushes in load current.

2) Continued exposure of the battery back-up to the temperature of the surrounding exceeding +25℃ will shorten the life of batteries.

3) If the altitude above sea level increases beyond the provided limit the permitted load power of the batter back-up decreases.

DIAGNOSTICS OF ERRORS REPORTED BY UPS

	Possible cause	Solution
Error code “08”,continuous sound signal	The unit switched to an error state due to exceeding maximum permitted temperature	Make sure that the unit is not overloaded, the fans are not blocked, and the surrounding temperature is not excessively high. Wait 10 minutes before powering on the unit in order for to cool it down. If the problem was not eliminated, contact technical support.
Error code “09”,continuous sound signal	Short circuit on the unit’s output	Disconnect all receivers. Turn off the unit. Make sure that the receivers are not damaged and check whether the UPS has no internal errors, and the reconnect the receivers. In the event of a problem concerning the UPS, contact technical support.
Error code “05” or “09”, continuous sound signal	The unit switched to an error state due to an internal error	Contact technical support
The UPS switches on in battery mode (MODE “03”)	Input voltage or frequency exceeds permitted levels	Check the power source
Error code “07”, continuous sound signal	Receiver overload or short circuit.	Check the receivers and disconnect non-critical receivers. Recalculate the power load and reduce the number of receivers connected to the unit. Check whether any of the receivers are damaged.
Warning – code “23”, sound signal every 1 second	Damaged storage cells or loader	Contact technical support
Error code “11”,continuous sound signal	Low charge level of storage cells or storage cells disconnected	Check the condition of storage cells
The UPS does not operate although the mains voltage is correct	service BYPASS switch damaged	Contact technical support
The battery support time has become shorter	The storage cells are not fully charged	Leave the unit connected to the mains for at minimum 10 hours in order to fully charge the storage cells.
	Unit overload	Check the receivers and disconnect non-critical receivers.
	Storage cell capacity decrease caused by aging	Replace the storage cells
The unit does not switch on after pressing the “ON” button	The “I” has been pressed for an insufficient period of time	Press the “ON” button for at least 1 second
	No storage cells are connected to the unit or the voltage of storage cells is too low	Check the connection of storage cells or charge the storage cells
	Unit error	Contact technical support

INFORMATION REGARDING REGULATIONS AND WARRANTY

DECLARATION OF CONFORMITY

The UPS structure conforms with applicable subject norms.

WARRANTY

A separate document attached to the product constitutes the warranty. The document must meet all formal requirements (e.g. the fields: serial number, model/type, date of sale, and dealer stamp must be filled out).

The manufacturer made all efforts to ensure that products offered are free of material and workmanship defects. The company's liability under the warranty is limited to repairs or replacement of products with such defects. The manufacturer shall make the decision as to how the defect is removed. The warranty does not cover devices with mechanical damages that occurred as a result of negligence of incorrect use nor devices subjected to any modifications made by the user. Apart from the arrangements included in the warranty card EVER Sp. z o.o. does not grant any guarantee or warranty, including warranty of merchantability or fitness for particular purpose.

Apart from the arrangements included in the warranty card EVER Sp. z o.o. shall not be liable for direct, indirect, specific, incidental or consequential losses incurred in the course of using the battery back-up, even in cases when the buyer was warned about such losses being a possibility. The company shall not be liable for any costs, such as loss of profit or revenue, cost of equipment, costs of equipment use, costs of software, data, replacement products, claims of third parties or other costs.